

REMARKS

Claims 1 through 29 remain pending in this application. Claims 9 through 13 and 24 through 28 stand withdrawn. Claims 1 through 8, 14 through 23 and 29 stand rejected. In response to the Office Action dated September 20 2005, claims 1, 2, 15 and 17 have been amended. Care has been taken to avoid the introduction of new matter. Favorable reconsideration of the application as amended is respectfully solicited.

Objection has been made to the drawings at paragraph 2 of the Office Action. One stated basis for the objection is that “element 204 is not shown in the Figures.” This objection is not understood as no such element appears in either the specification or claims. However, SOA 204 does appear throughout the specification and is illustrated at Fig. 2. Thus, it is believed that objection requires no correction.

With respect to the phrase “outer periphery side,” this phrase has been replaced in both the specification and in claims 2 and 17. The recitation in the specification was intended to depict that feature illustrated in Fig. 1 wherein the light emission layer 26 is closer to the silicon bench 10, as described in paragraph [0045] of the specification. The specification has been amended accordingly. It is submitted that the drawings meet the requirements of 37 CFR 1.83(a). Withdrawal of the objection is respectfully solicited.

Objection has been made to claims 2 and 17 for the recitation therein of the phrase “outer periphery side.” These claims have been amended as discussed above. Withdrawal of the objection is respectfully solicited.

Claims 1, 2, 7 and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. patent 5,127,081 (Koren) in view of U.S. patent 6,504,977 (Krishnamoorthy). The Office Action recognizes that Koren does not expressly disclose the claimed elements in two

respects. Krishnamoorthy has been relied upon for teaching flip-chip bonding a circuit on a substrate for the purpose of reducing inductance power distribution to the integrated circuit. With respect to the claimed requirement for a grating formed in the optical waveguide, the Office Action refers to Koren's brief reference to a Liou et al. publication.

Independent claim 1 has been amended to recited that the substrate is silica-based. The claim also requires that the grating, formed in the optical waveguide, together with the optical semiconductor element constitute an external resonator.

Liou teaches a DFB laser into which a grating is formed such that the grating is positioned in the semiconductor active layer and thereon. In contrast, the claims require structure such that both the optical semiconductor element and the optical circuit element are provided on the silicon bench. In the claimed optical circuit element, the claimed grating is formed in the optical waveguide on the silica-based substrate that is different from the optical semiconductor element. The claimed grating, together with the semiconductor element, constitute a laser resonator, while the grating is apart from the optical semiconductor element. The claimed resonator structure is different from the structure of the DFB laser.

The Office Action refers to a teaching in Koren of an optical circuit element including the silicon substrate 365. However, the substrate 365 is an n-type InP substrate, which is clearly distinguishable from a Si substrate. The waveguide of Koren has a structure obtained by integrally constituting SOA 310 and Y-junction waveguide 300. In contrast, in the claimed invention the SOA and the optical waveguide are individually formed and thereafter coupled. Thus, Koren considered with Liou does not teach or suggest the claimed structure. Krishnamoorthy has not been relied upon, nor disclose, the claimed resonator structure discussed

above. It is submitted, therefore, that claims 1, 2, 7 and 14 are patentably distinguishable.

Withdrawal of the rejection is respectfully solicited.

Claims 4 and 5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Koren in view of Krishnamoorthy and U.S. patent 6,435,734 (Okada). These claims are dependent from claim 1. Okada has been relied upon solely for teaching the additional requirements of the dependent claims. It is submitted that claims 4 and 5 are patentably distinguishable at least for the requirement of the claimed features of parent claim 1 for the reasons presented above. Withdrawal of the rejection is respectfully solicited.

Claim 6 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Koren in view of Krishnamoorthy and U.S. patent publication 2002/0031297 (Forrest). Claim 6 is dependent from claim 1. Forrest has been relied upon solely for teaching the additional requirements of the dependent claim 6. It is submitted that claim 6 is patentably distinguishable at least for the requirement of the claimed features of parent claim 1 for the reasons presented above. Withdrawal of the rejection is respectfully solicited.

Claim 8 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Koren in view of Krishnamoorthy and U.S. patent 6,411,764 (Chandrasekhar). Claim 8 is dependent from claim 1. Chandrasekhar has been relied upon solely for teaching the additional requirements of the dependent claim 8. It is submitted that claim 8 is patentably distinguishable at least for the requirement of the claimed features of parent claim 1 for the reasons presented above. Withdrawal of the rejection is respectfully solicited.

No express statement of rejection of claims 14 through 23 and 29 has been set forth at page 8 of the Office Action, except for a brief statement that “the 103 rejections above applied” to some of the claimed limitations. It is respectfully submitted that claims 14 through 23 and 29

have not been properly rejected. The Office Action does not specify which references purportedly have been applied to each of these claims. Claim 14, it is noted, is dependent from claim 1. However, claim 15 is independent, claims 16 through 23 and 29 dependent therefrom.

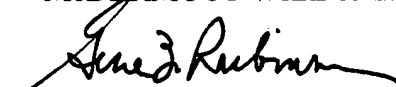
Claims 14 through 23 and 29 have not been grouped in any of the previous rejections. Established current PTO practice requires that claim rejections be set forth without the necessity of the applicant to guess as to what prior art references are being relied upon for each rejected claim and the rationale that forms a basis for rejection.

In an effort to submit a complete response, therefore, it is submitted that claims 14 through 23 and 29 are patentably distinguishable for the same reasons presented above in response to the rejections of claims 1 through 8. Withdrawal of the rejection is urged to be appropriate on this basis as well as for the reason that the rejection does not meet the requirements of due process.

Allowance of the application is respectfully solicited. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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